1/20

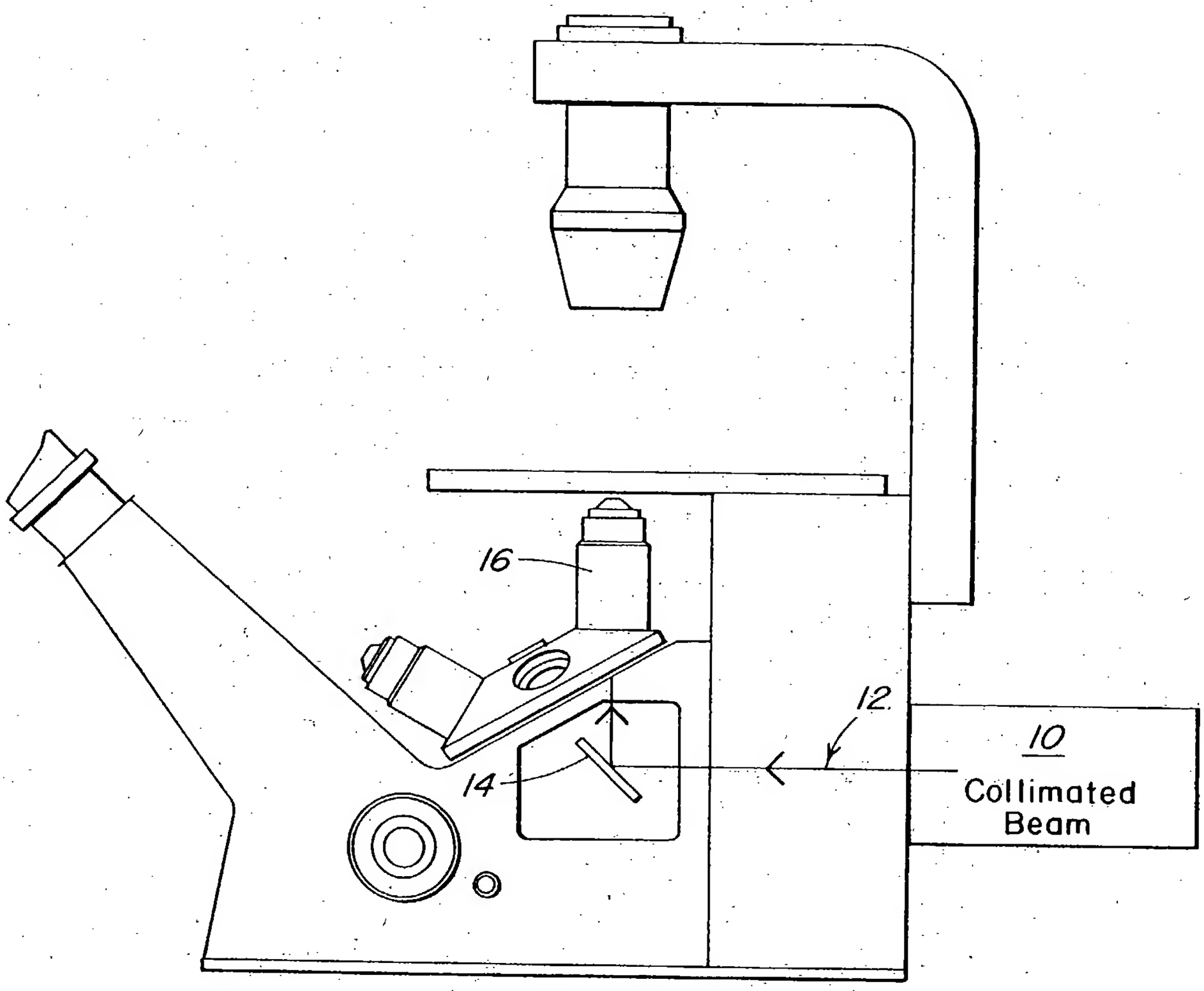

FIG. 1A
(PRIOR ART)

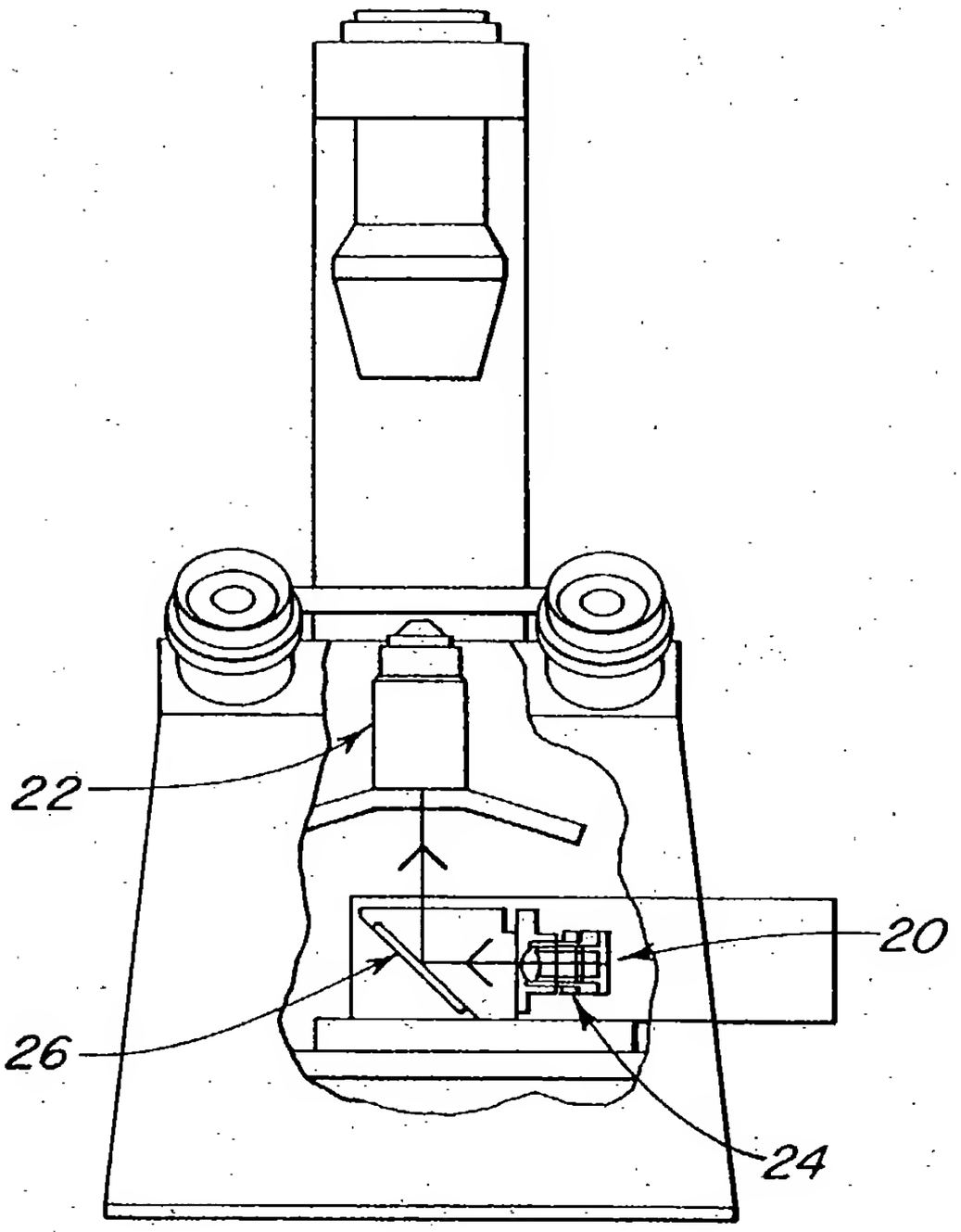

FIG. 1B
(PRIOR ART)

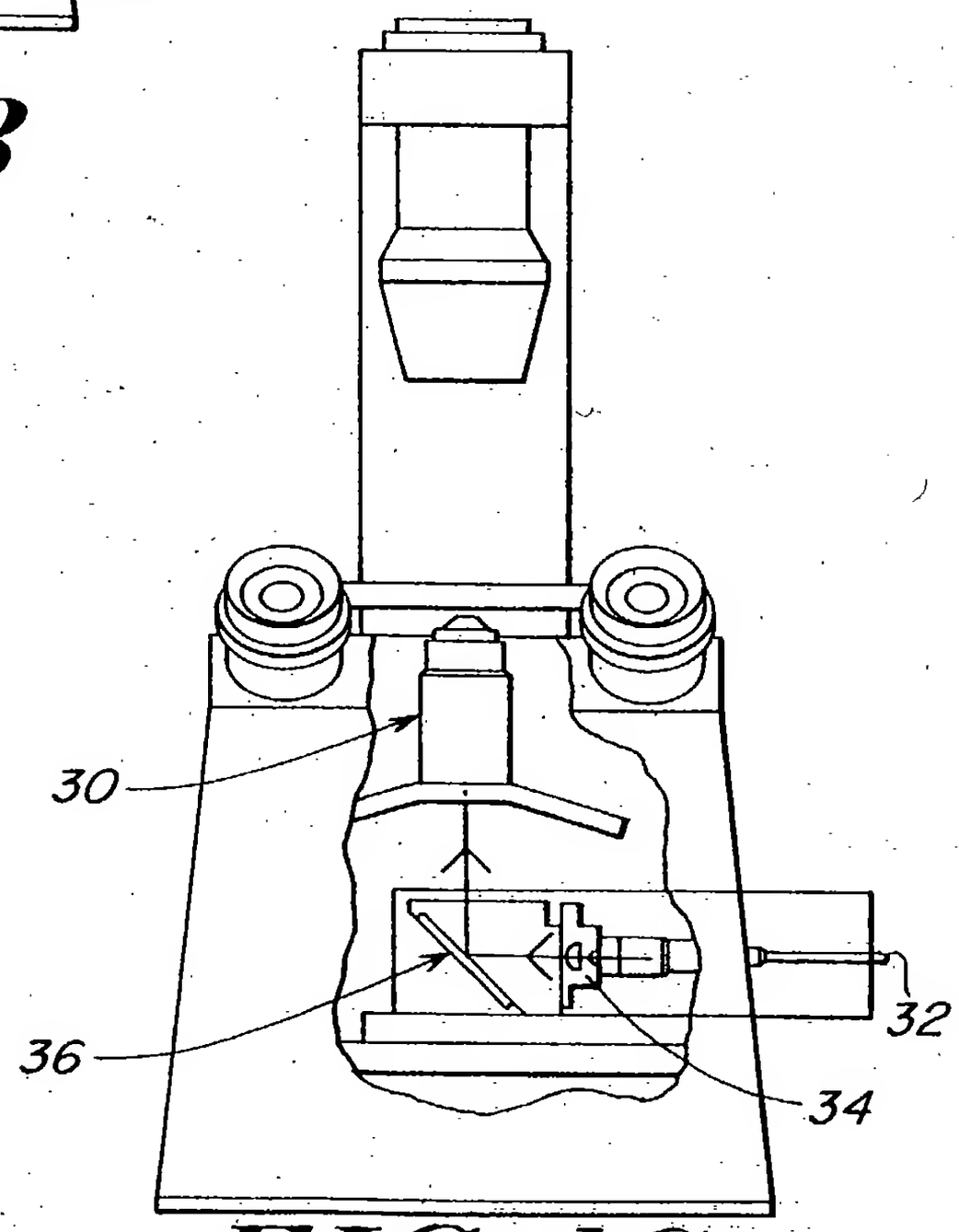

FIG. 1C
(PRIOR ART)

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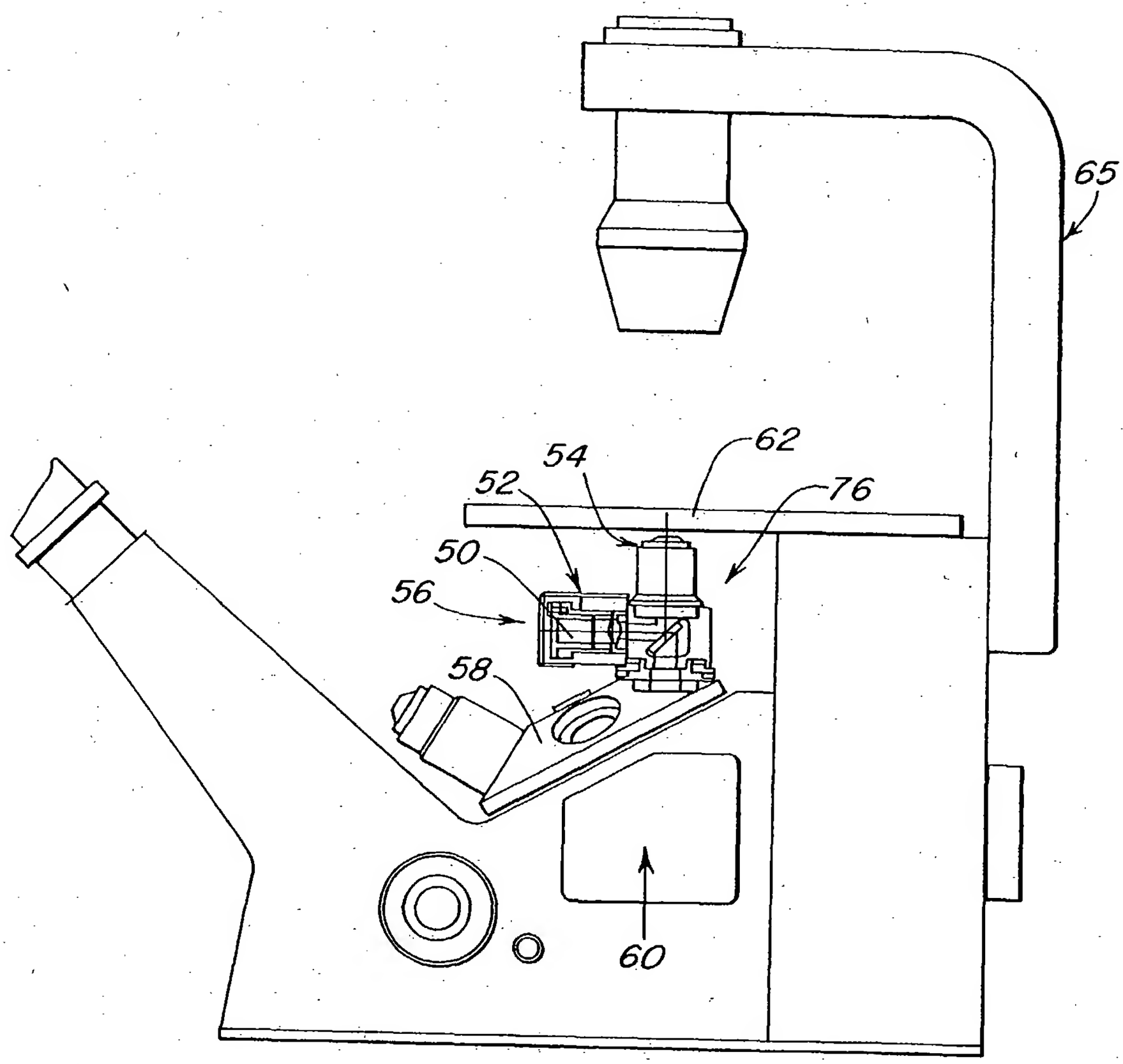

FIG. 2A

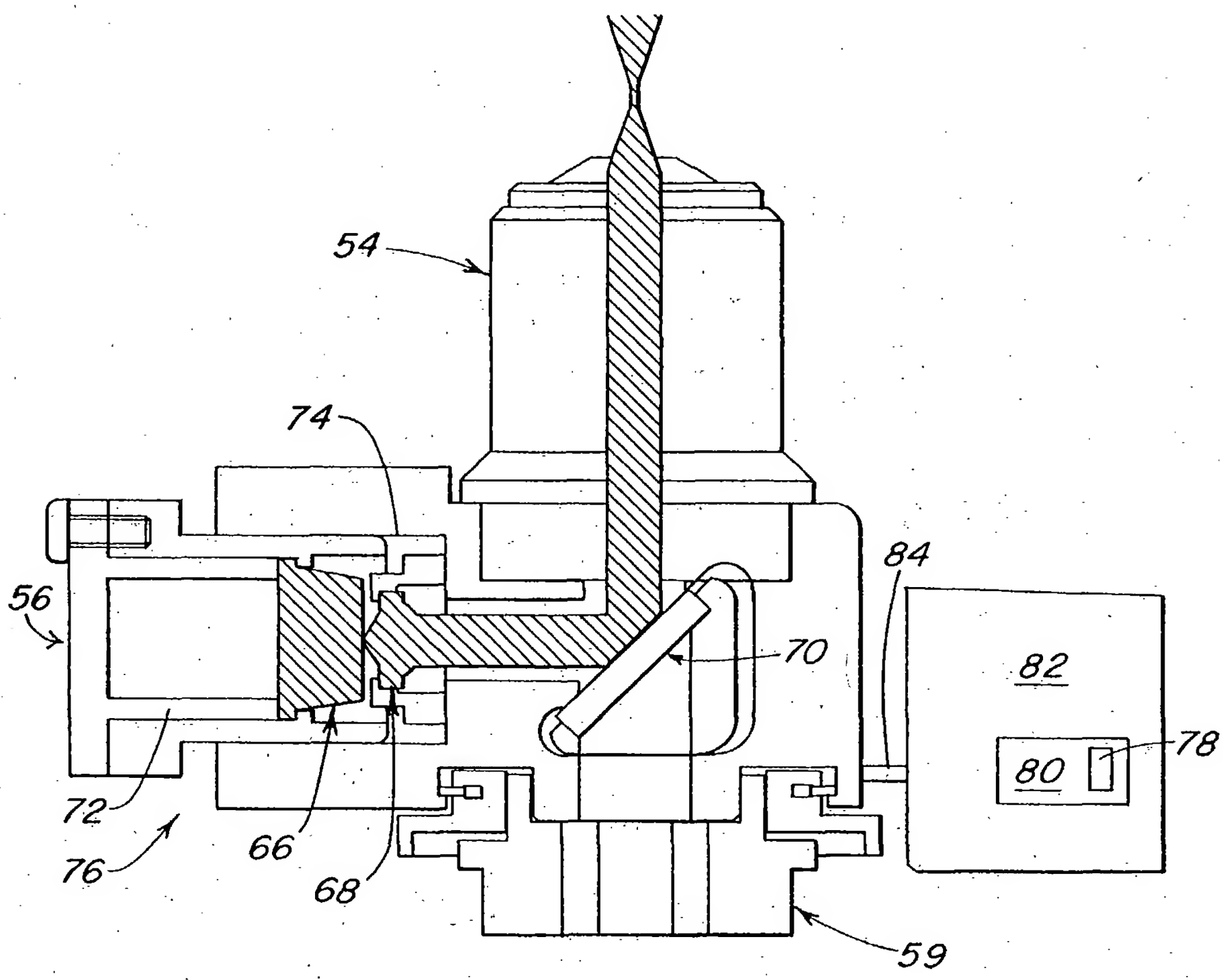

FIG. 2B

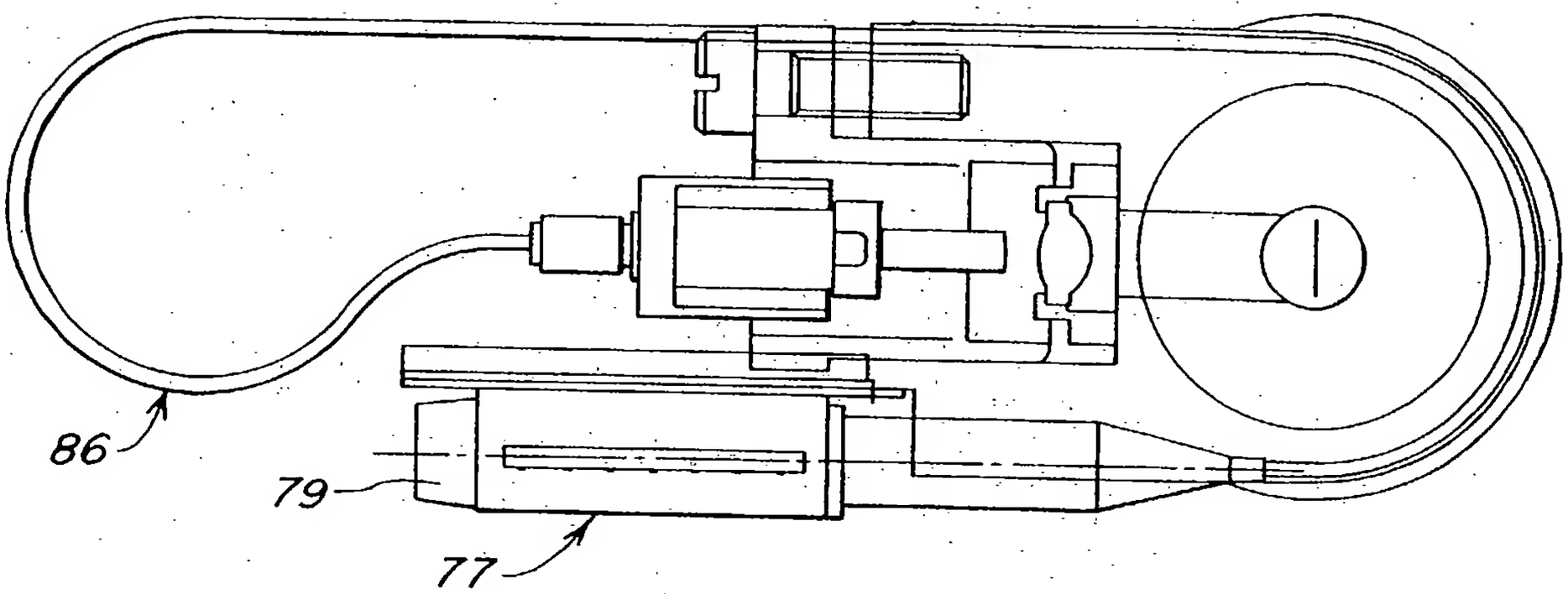

FIG. 3A

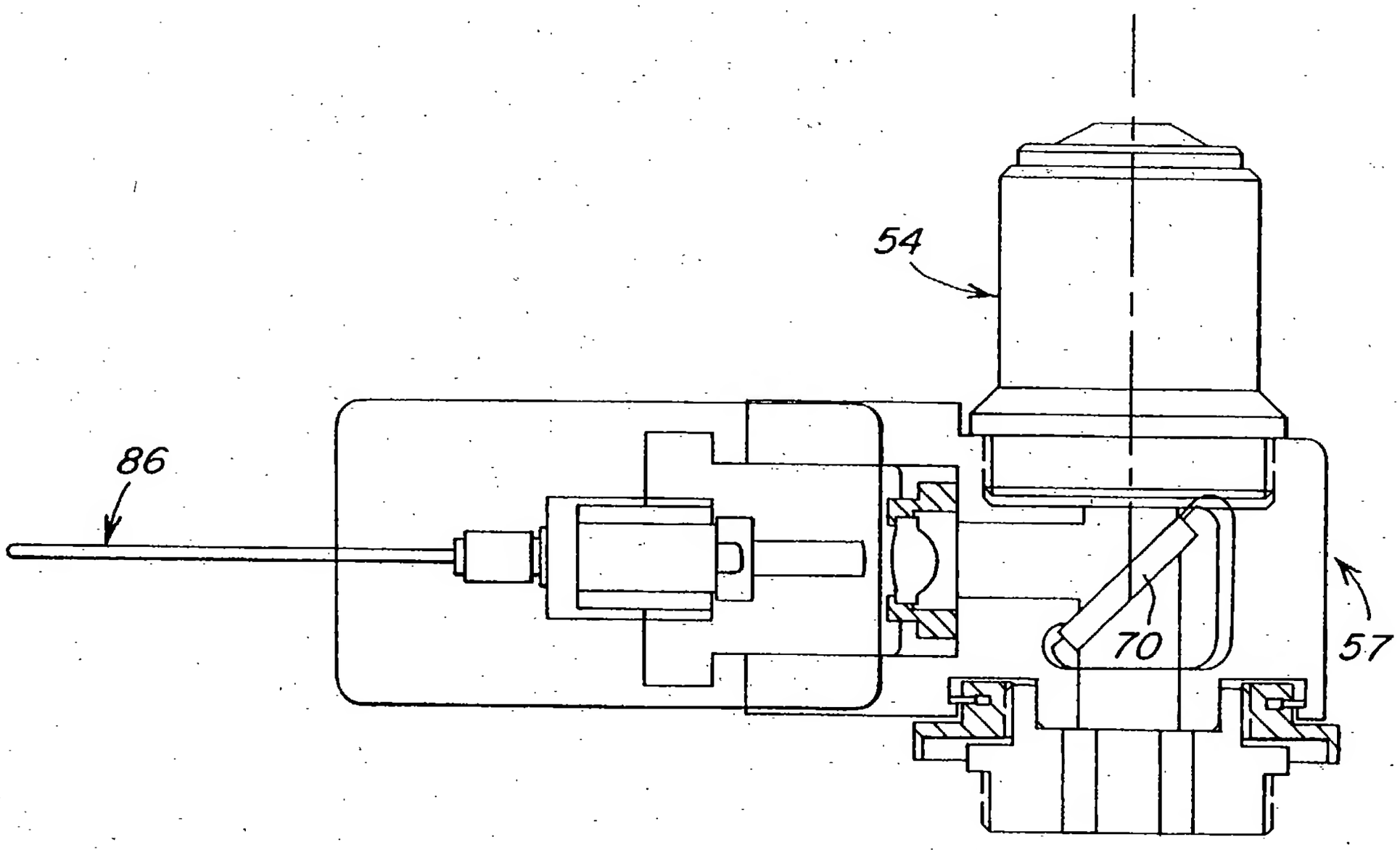

FIG. 3B

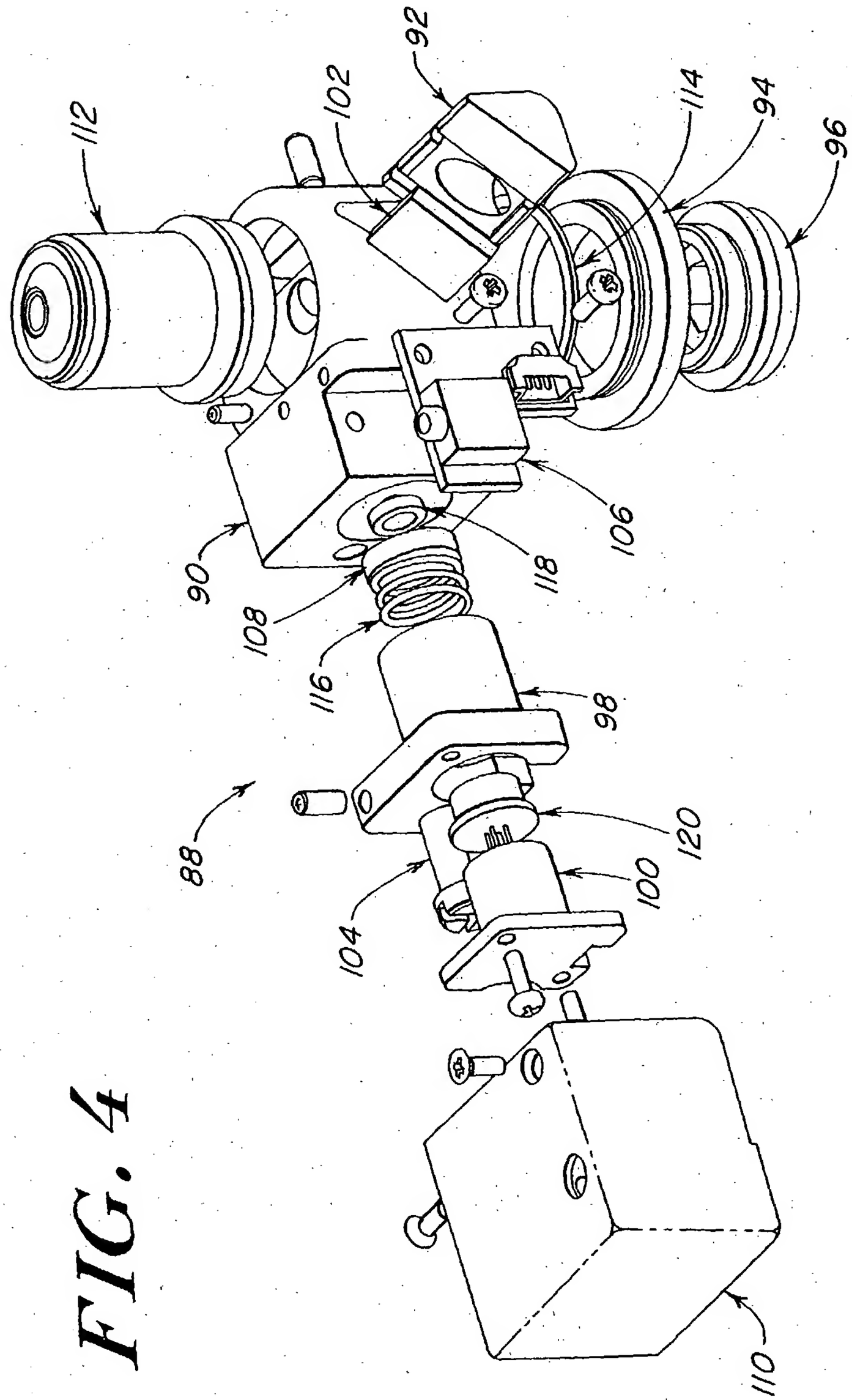

FIG. 4

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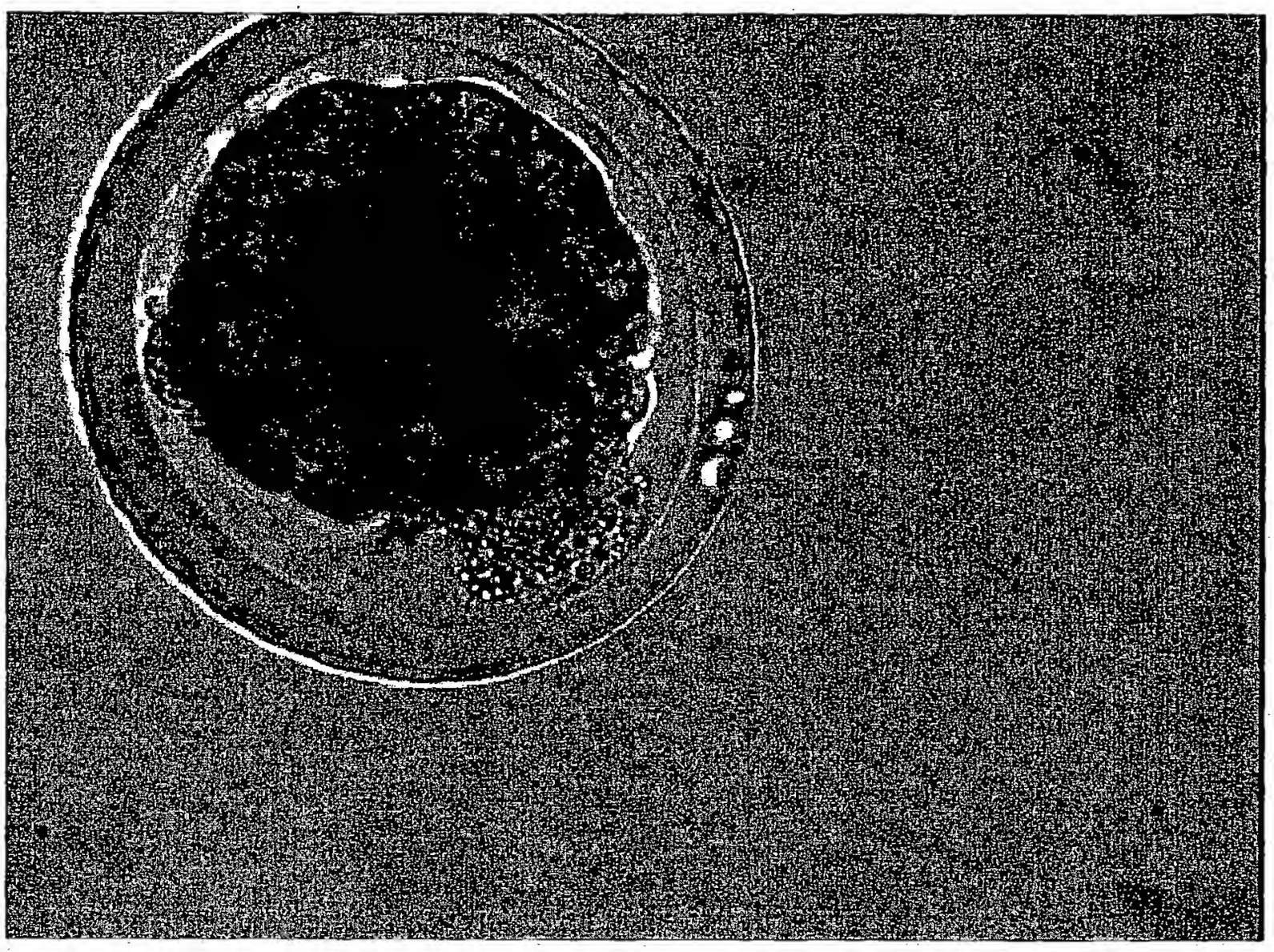

FIG. 8

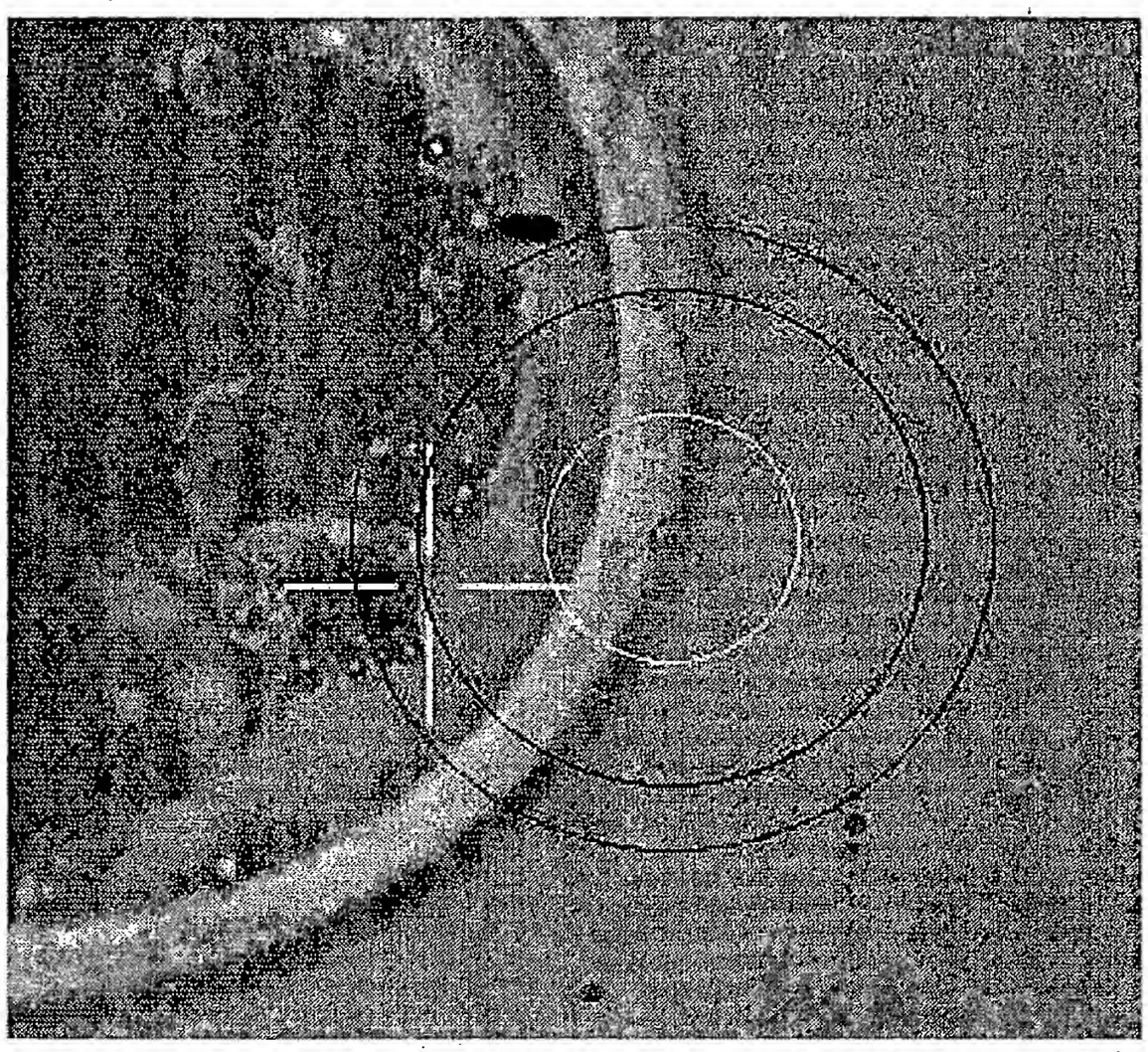

FIG. 7

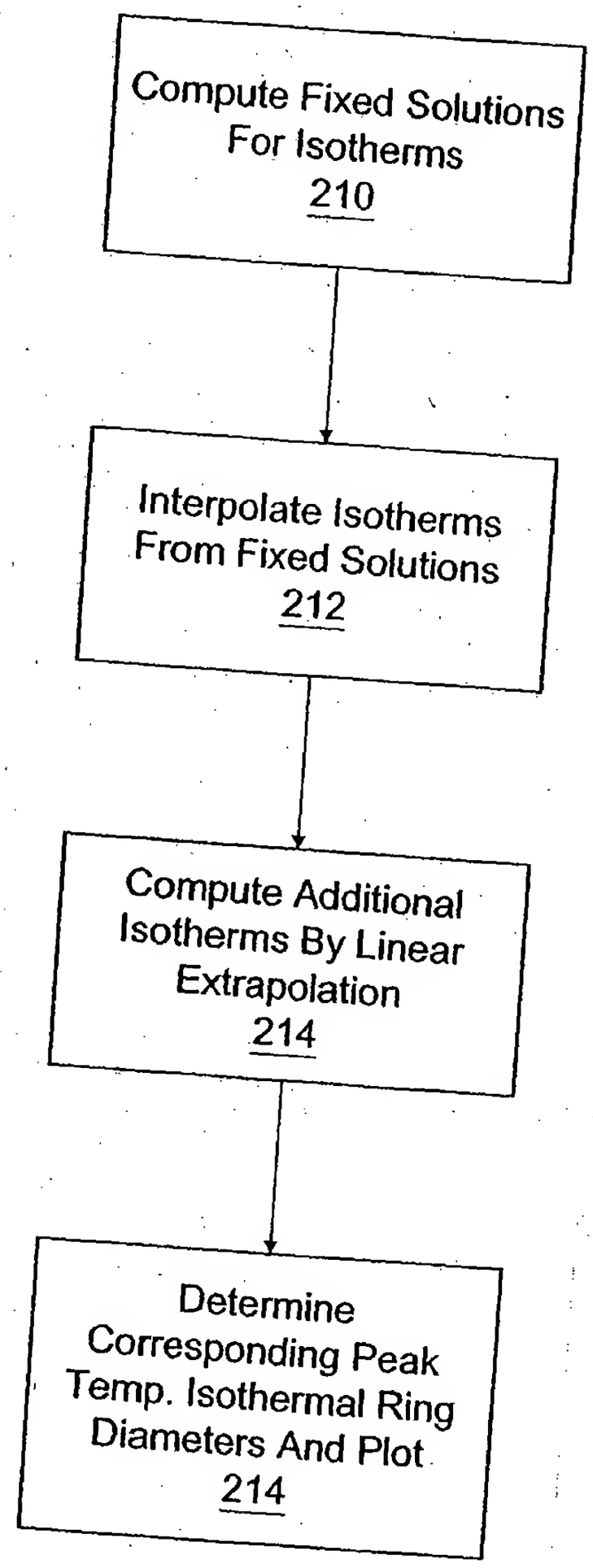
Compute Fixed Solutions For Isotherms 210
Interpolate Isotherms From Fixed Solutions 212
Compute Additional Isotherms By Linear Extrapolation 214
Determine Corresponding Peak Temp. Isothermal Ring Diameters And Plot 214

FIG. 6

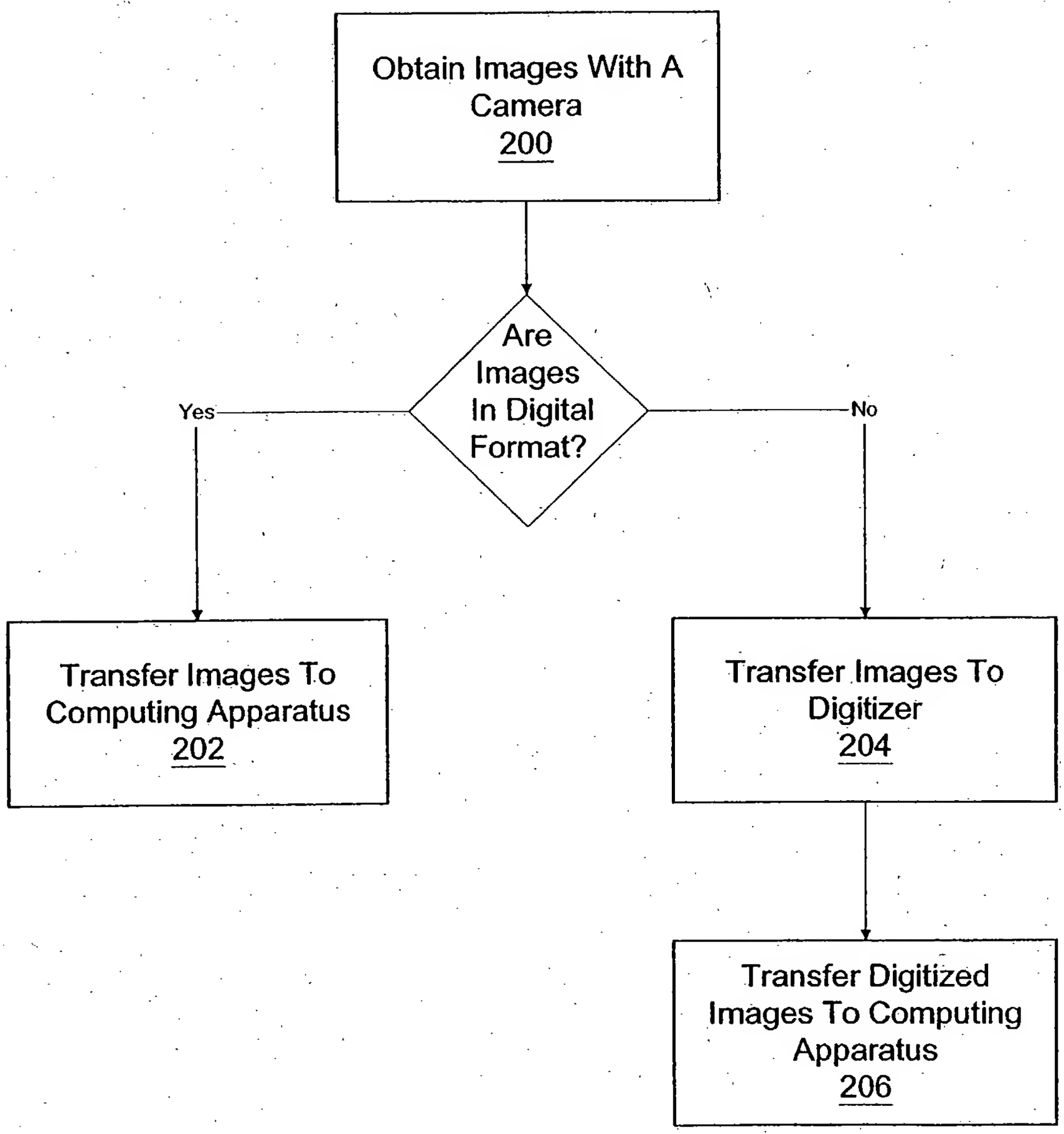
Obtain Images With A Camera 200
Are Images In Digital Format?
Yes
No
Transfer Images To Computing Apparatus 202
Transfer Images To Digitizer 204
Transfer Digitized Images To Computing Apparatus 206

FIG. 5

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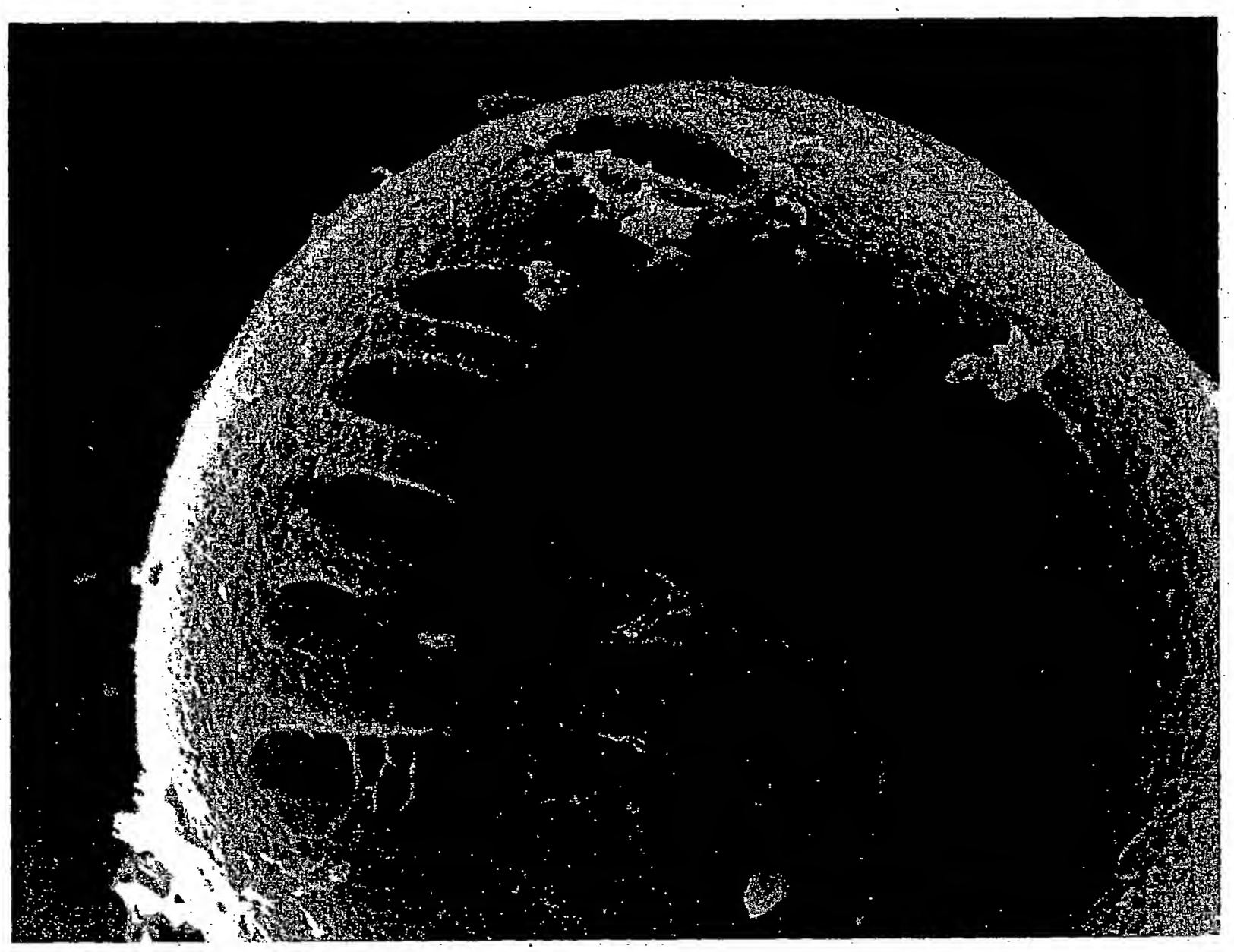


FIG. 9A

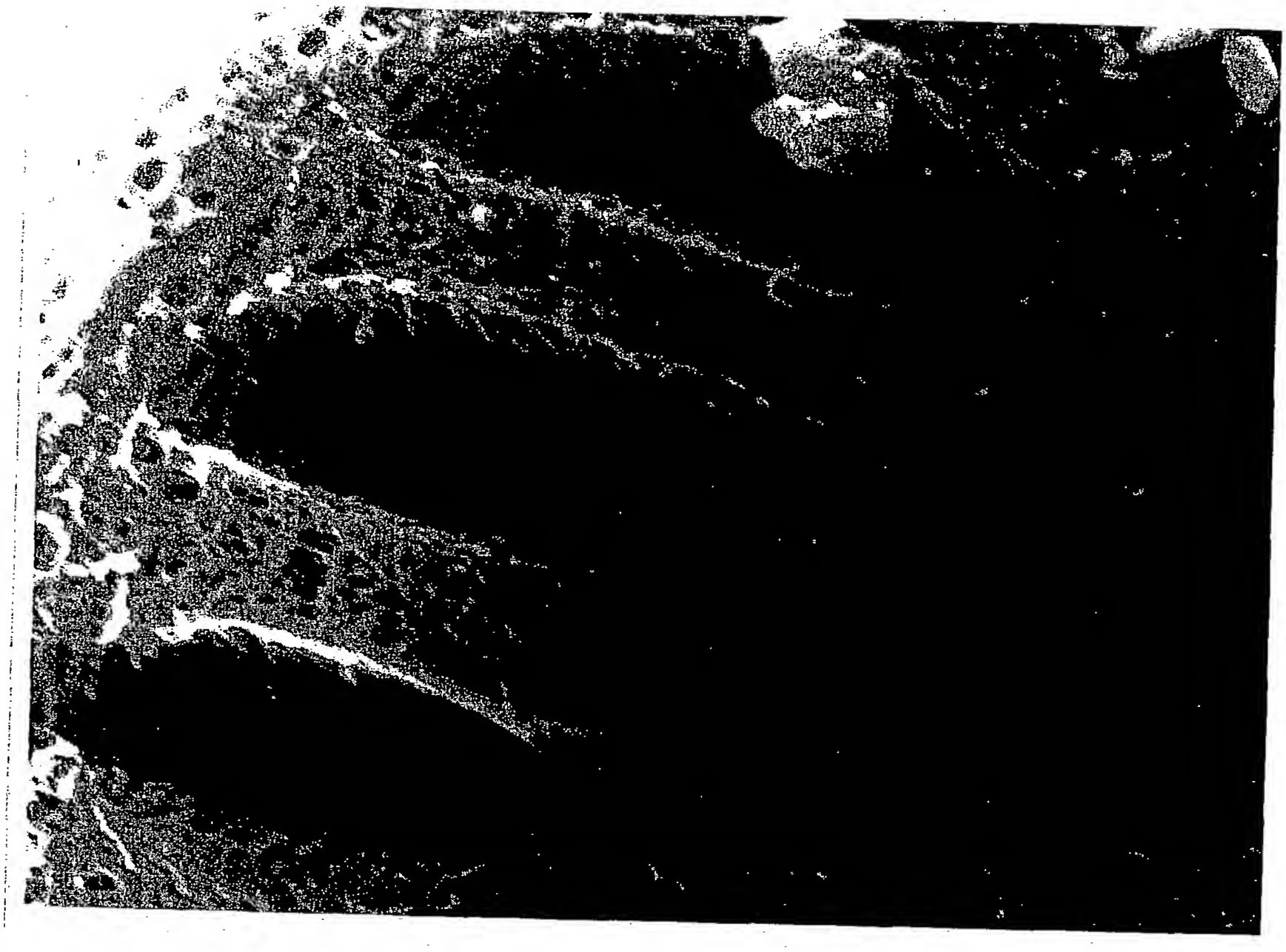


FIG. 9B

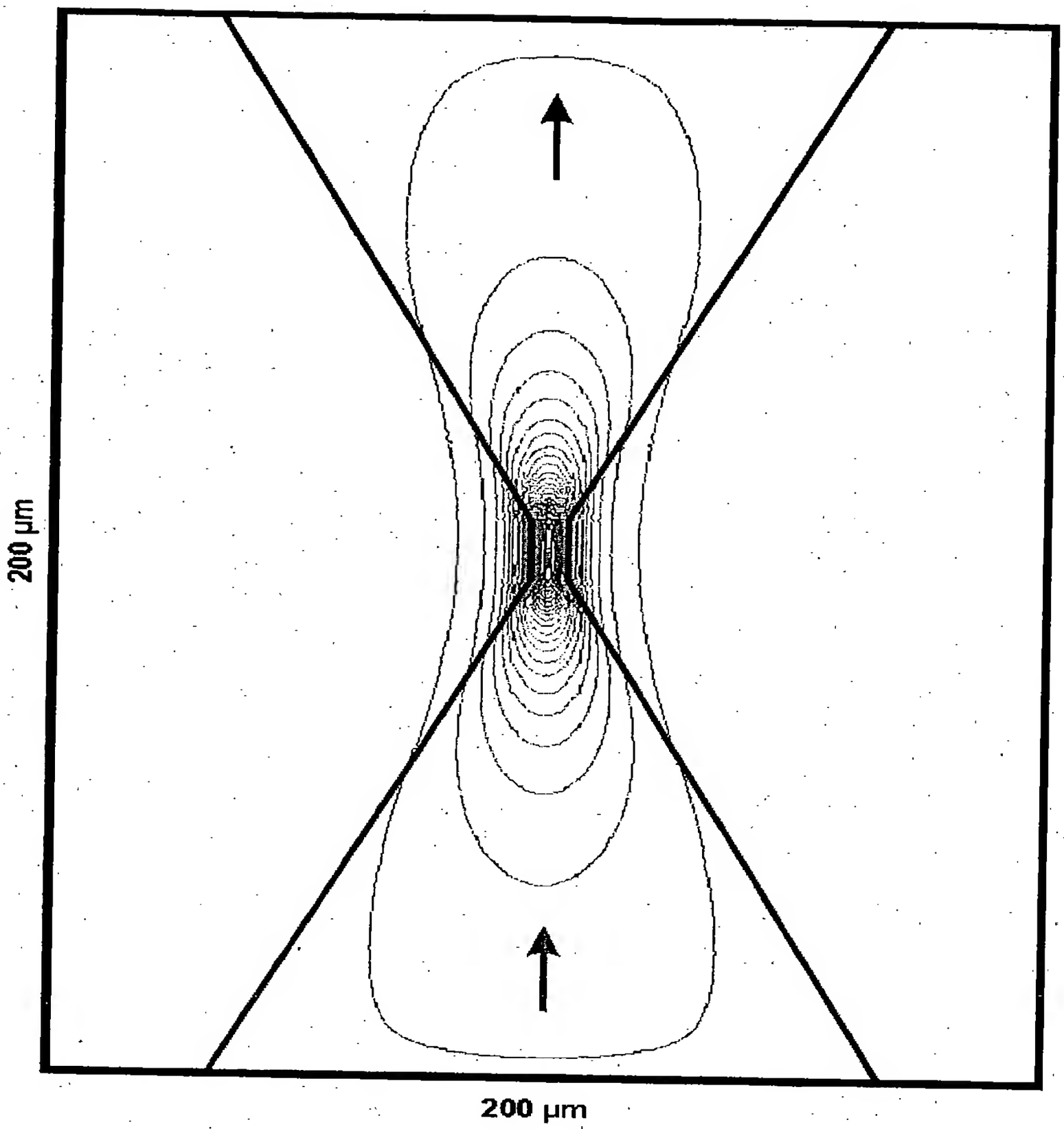


FIG. 10A

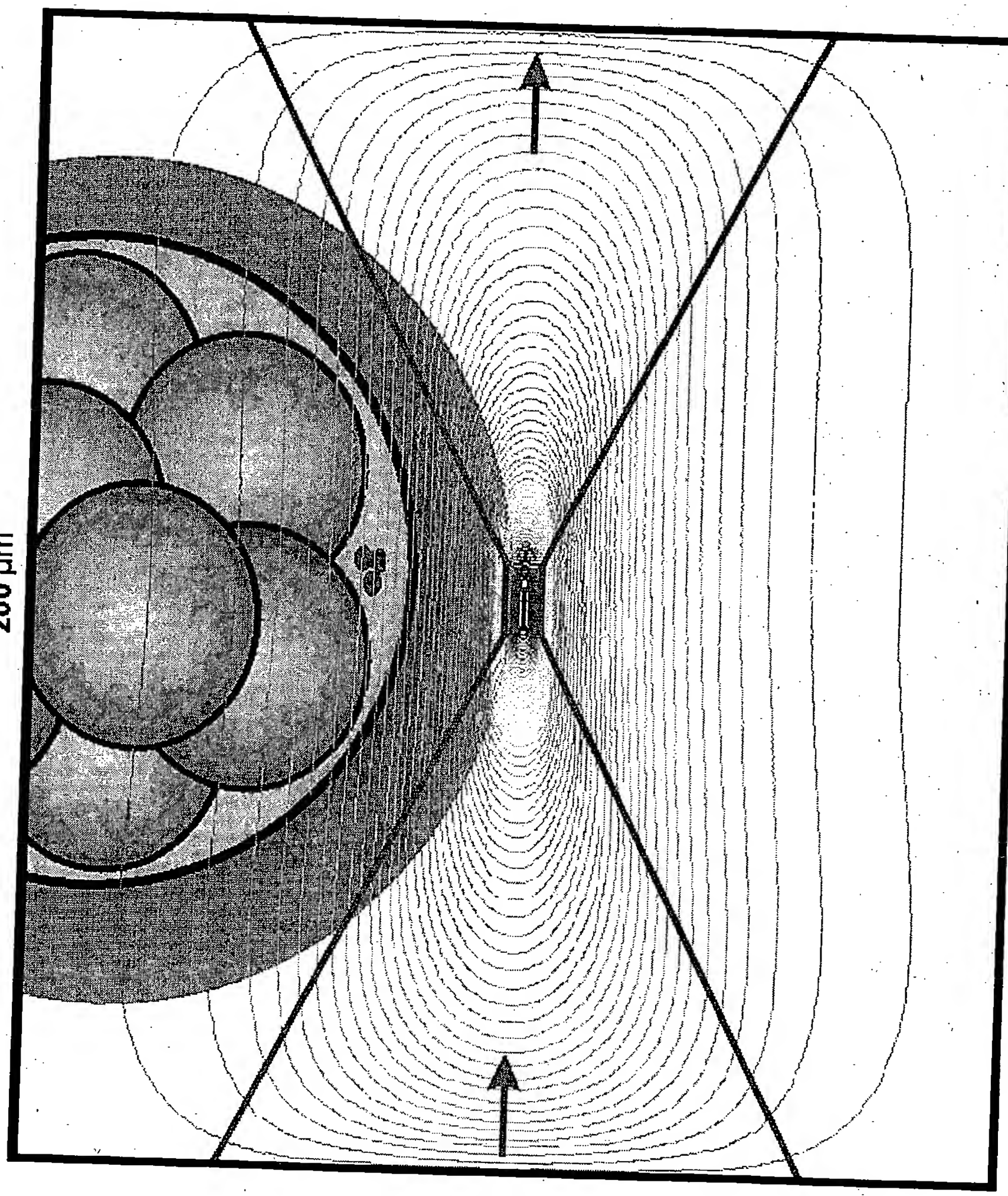


FIG. 10B

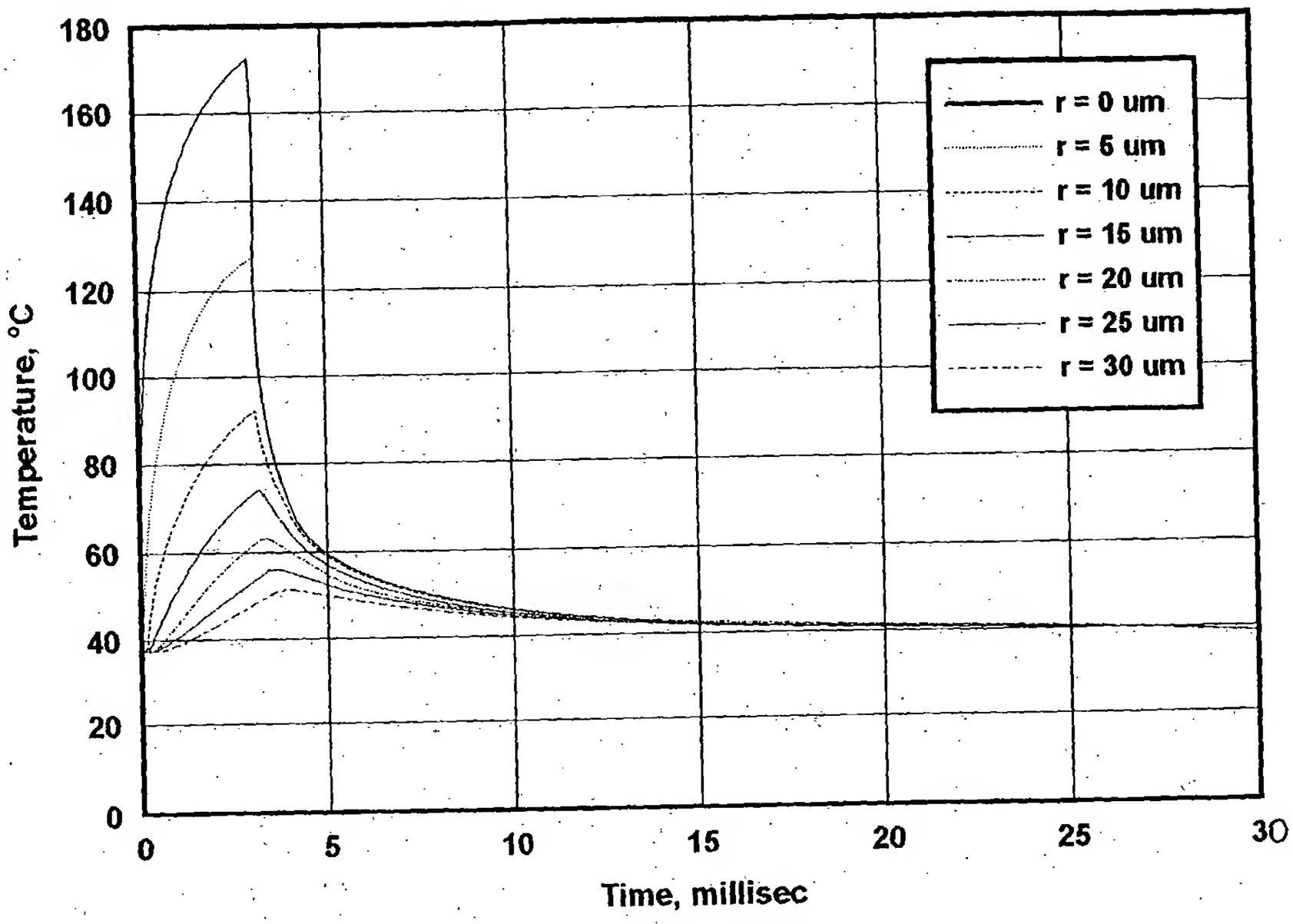

180
160
140
120
100
80
60
40
20
0
Temperature, °C
0
5
10
15
20
25
30
Time, millisec
r = 0 um
r = 5 um
r = 10 um
r = 15 um
r = 20 um
r = 25 um
r = 30 um

FIG. 11

16/20

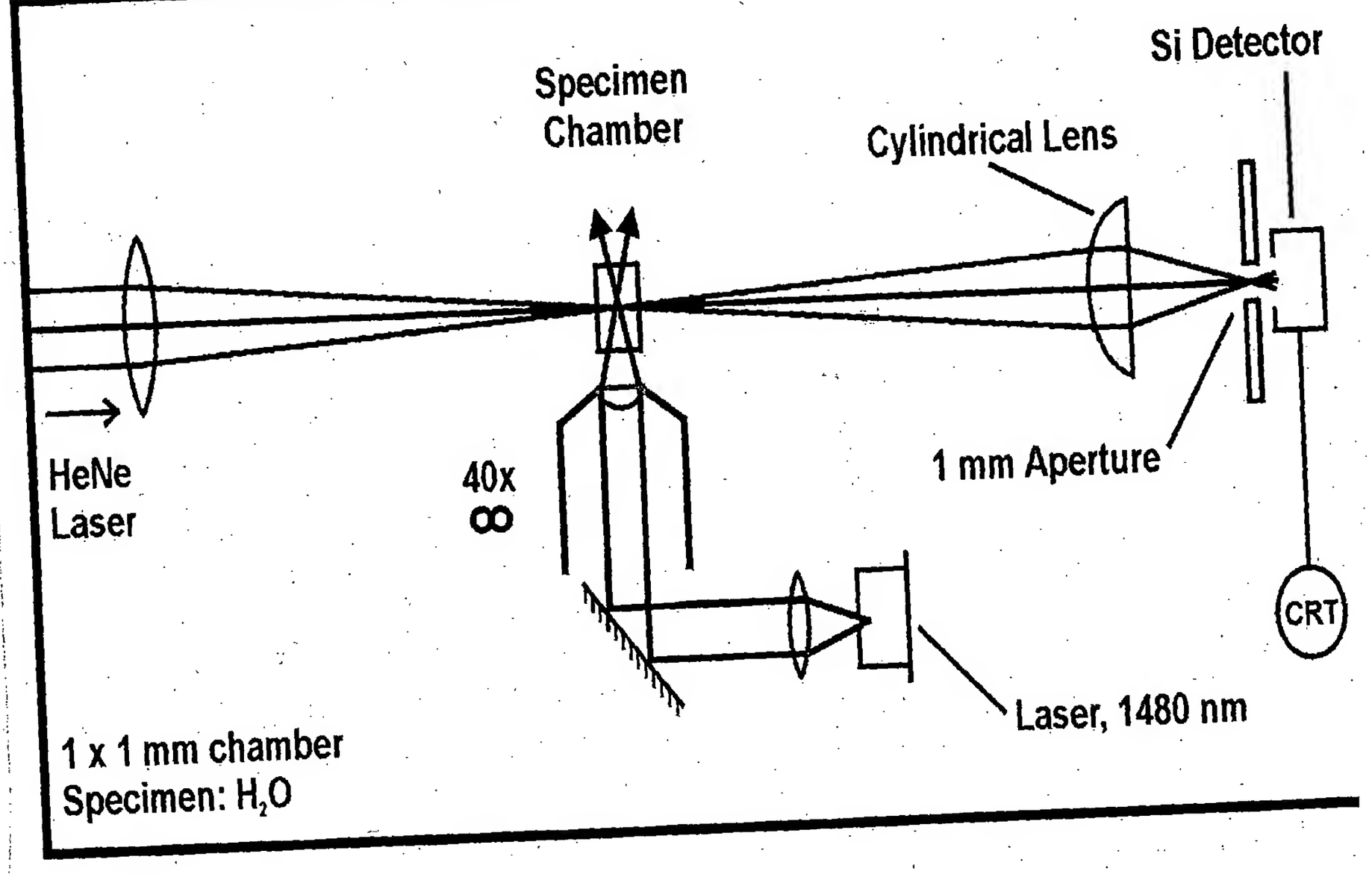

Si Detector
Specimen Chamber
Cylindrical Lens
HeNe Laser
40x
∞
1 mm Aperture
CRT
Laser, 1480 nm
1 x 1 mm chamber
Specimen: H_2O

FIG. 12

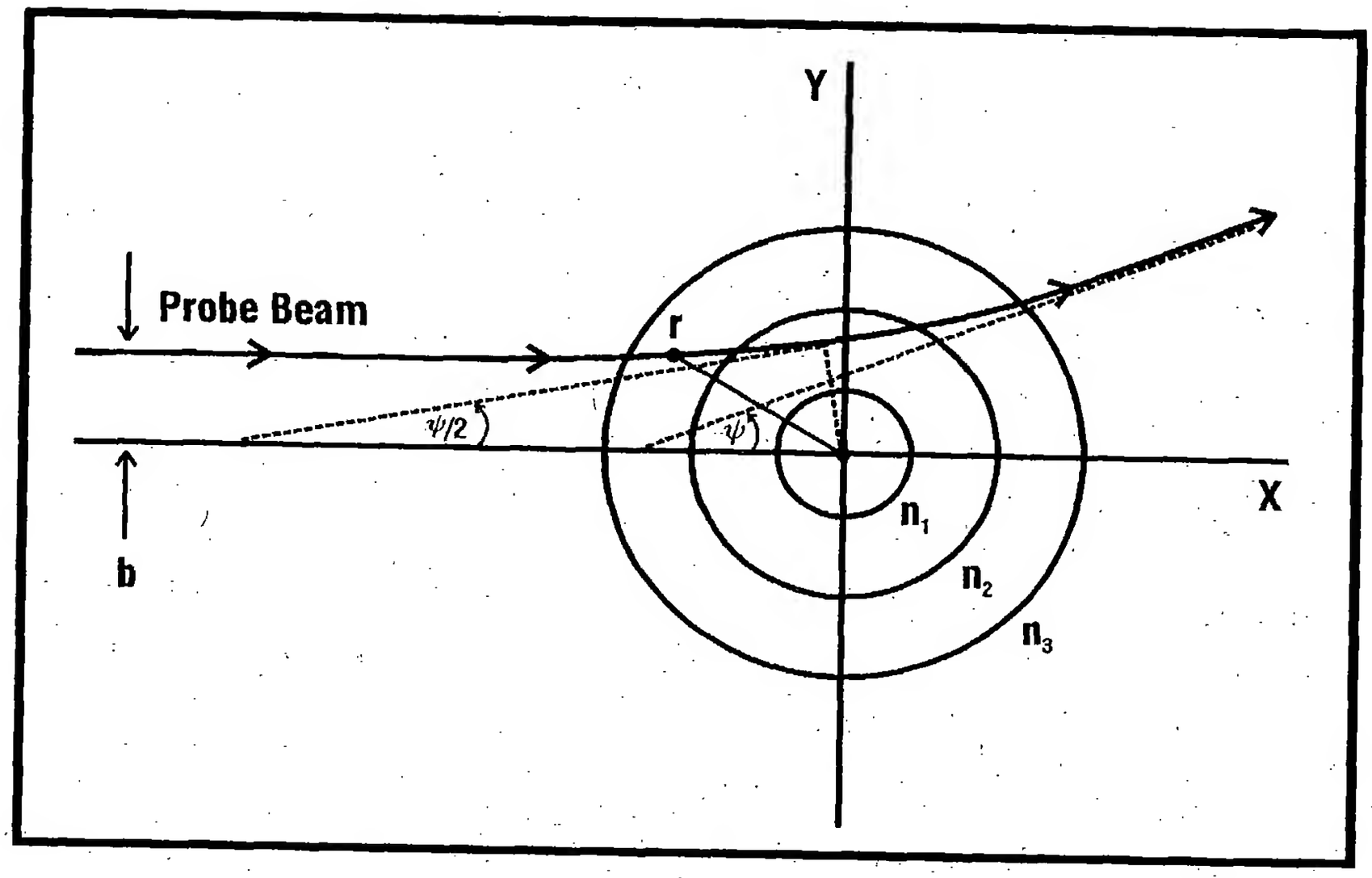


FIG. 13

Exptl and predicted max. steering angle of probe beam, vs delivered beam power in water.

Pulse duration 1 - 25 ms. Beam radius 3 micron.

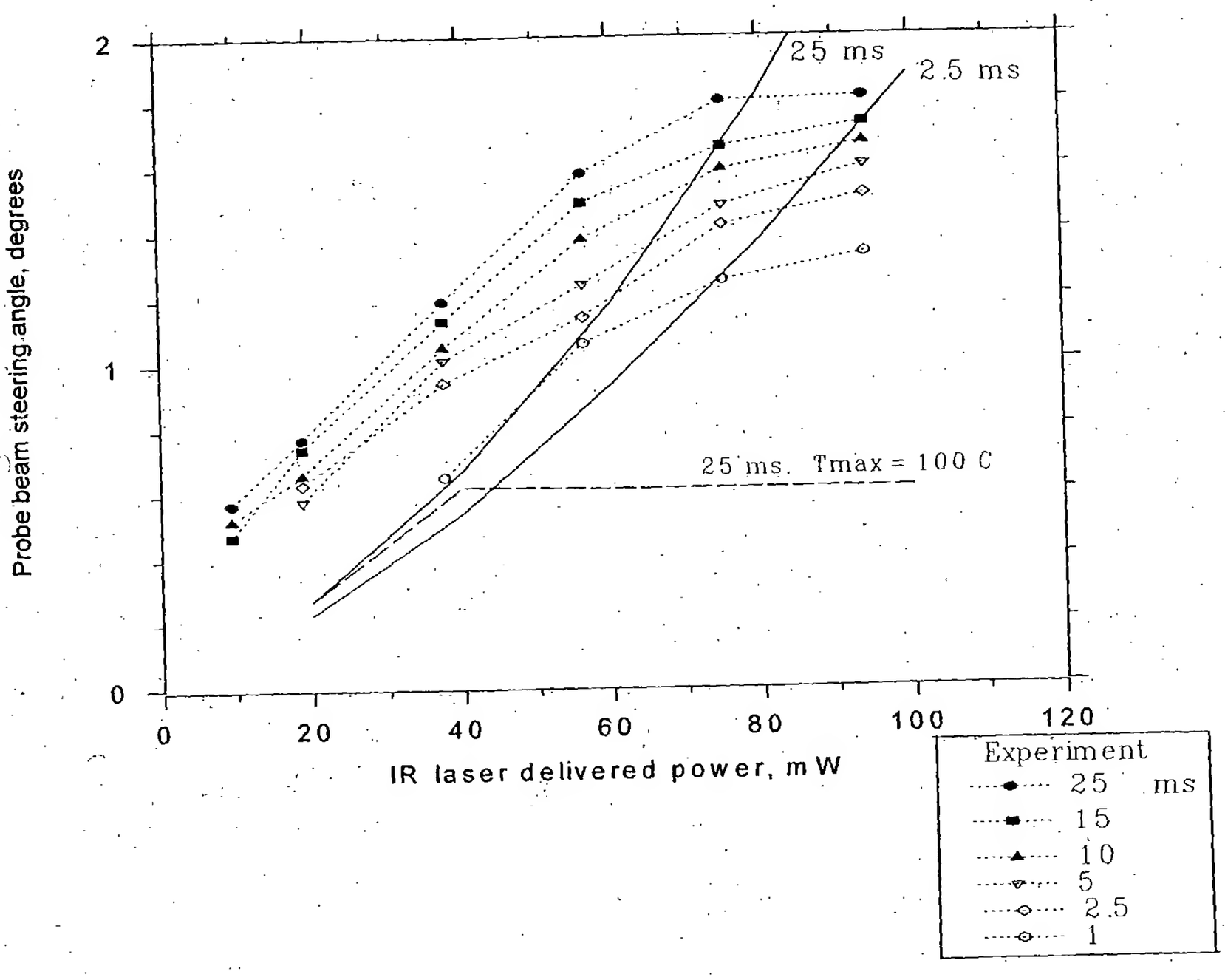
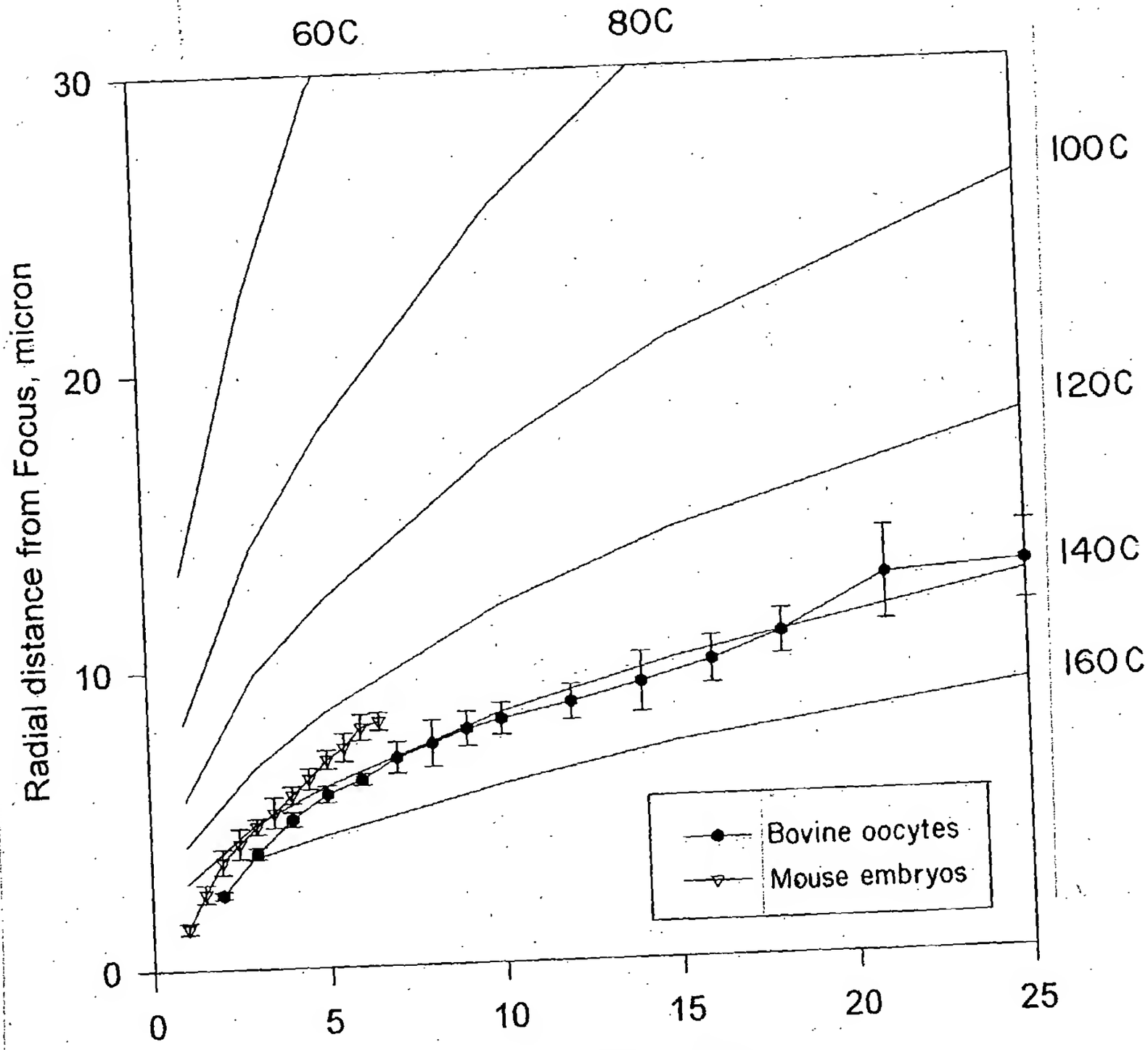


FIG. 14

ZP Drilled Trench Diameter vs Peak temperature for various pulse length, radial position. Power: 100 mW. Beam focal radius: 3 micron



3 Bovine oocytes
2 Mouse Embryos

FIG. 15

Temperature at radius 20 micron vs Pulse Duration, various Powers. Beam radius 3 micron.

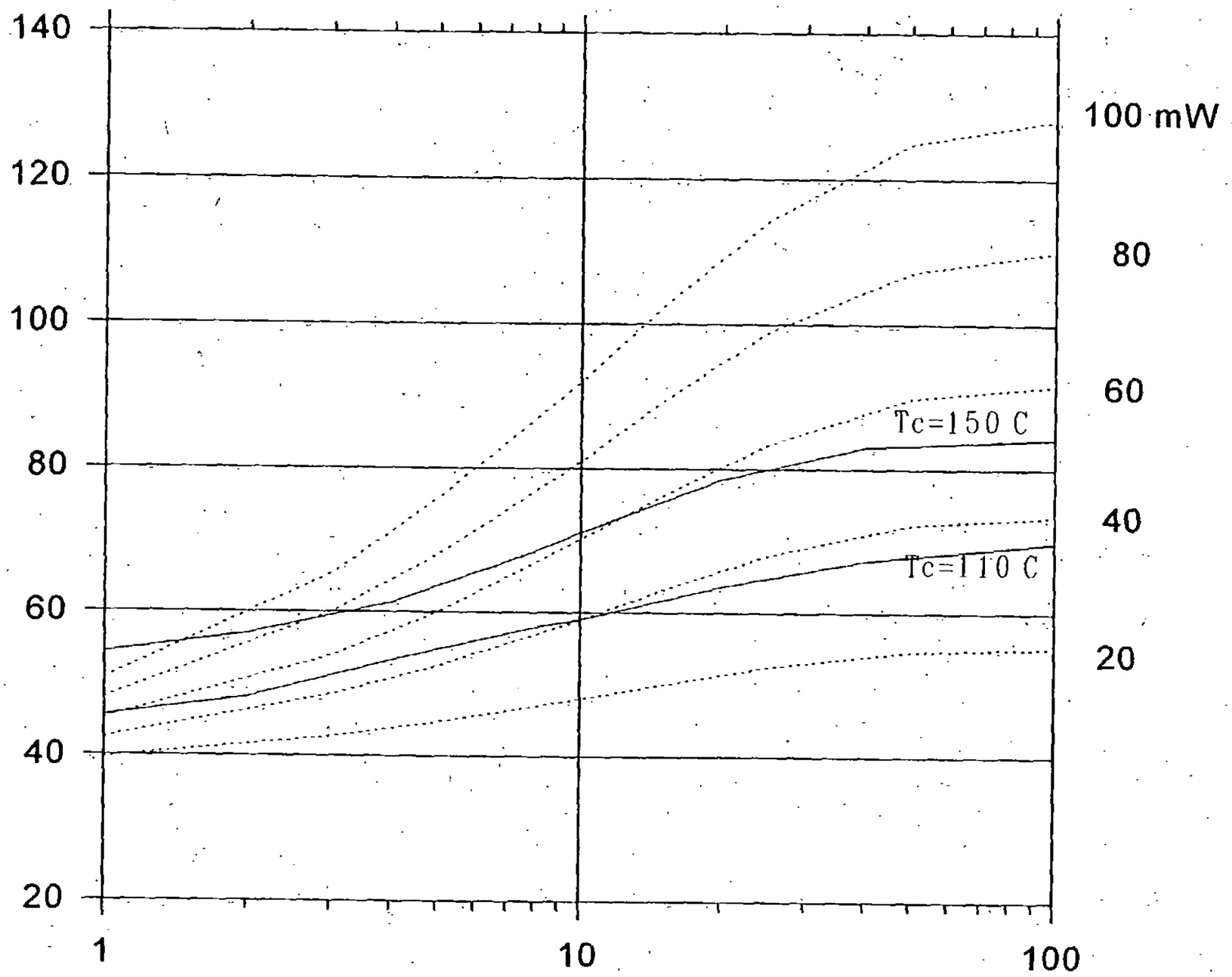


FIG. 16